Tulane University Climate Action Plan: Terms and Acronyms

Abatement	A lessening or reduction of GHG emissions
Abatement curve	A standard graphic used to represent the estimated volume of GHG emissions reduction for each element of a portfolio and the annual cost/savings associated with each
ACUPCC	American College and University Presidents' Climate Commitment
BAU	Business as Usual: the expected pattern if current practices are extended over time
Carbon offsets	Credits procured for GHG emissions reduction that are accomplished by a third party
CAP	Climate Action Plan, a set of strategies to reduce an entity's greenhouse gas emissions
CHP	Combined heat and power (or cogeneration) refers to the simultaneous generation of electricity and heat from a single fuel source and can provide on-site generation of electricity and recovery of waste heat
GHG	Greenhouse gases, primarily carbon dioxide, methane, nitrous oxide and fluorinated gases
ECM	Energy conservation measure is an investment made in a building with the expectation that it will reduce building energy demand. ECMs vary widely in terms of first cost, savings, and longevity of savings. ECMs recommended for Tulane are:

- Building metering - Install building/tenant level metering, benchmark energy use, and continuously monitor usage. Installation of building level metering is currently underway, and active monitoring of meter data will provide FM with a tool for maintaining and reducing energy use over time.
- CV to VAV -- For air systems designed to supply a constant volume of airflow regardless of load and occupancy, converting to variable volume through the addition of variable speed motors on fans and zone level control devices where necessary, the air flow can be reduced during low load conditions. This can reduce fan energy and possibly reheat energy.
- DCV - Add CO2 based demand control ventilation to air handling units. This strategy allows the ventilation rate to respond to building occupancy rates. During periods of low occupancy, ventilation will reduce beyond the design minimum, reducing energy use associate with preconditioning of outside air.
- Demand Management -- Implement behavioral based programs such as energy reduction focused competitions, education programs, and pledges. Residence hall or department based competitions could encourage reducing energy use.
- DOAS/DH - Cooling and dehumidifying outdoor air requires a significant amount of energy. Traditional return air systems mix outside air with ventilation air and use chilled water to cool/demudify the air. In lieu of this approach, use dedicated outside air systems with dessicant dehumidification and exhaust/relief air recovery to precondition outdoor air.
- EA HR – Exhaust air heat recovery. In buildings with high outside air ventilation requirements, use enthalpy wheel or runaround water loop exhaust air energy recovery devices to precondition ventilation. Choice of heat recovery will depend on building type and whether cross contamination of supply air is a concern.
- FH DCx-- Fume hoods decommissioning. Where fume hoods are located in teaching laboratories, decommission (turn off) fume hoods during closed hours. This typically requires a nightly check to confirm fume hoods are not in use and then turning off the system. This will exclude research labs, where experiments may run through the evening.
- FH VAV- Fume hoods variable air volume. Convert constant volume fume hoods to variable volume with occupant based controls. Proximity sensors will reduce flow to the hood when not in use.
- HVAC scheduling - For buildings that are closed in the evenings/weekends, schedule equipment off during closed hours and use night cycle control to maintain space conditions.
- Lighting controls - Use occupancy and schedule based controls to reduce light use when spaces are not being utilized.
- Lighting upgrade - Upgrade light fixtures to reduce installed lighting power density: T8 with high efficiency ballast will be basis of improvement.

- Plug load management - Use occupancy based plug load management devices to turn off computer and non-essential electric equipment when work spaces are unoccupied. Scheduled control of outlets or power strip devices capable of sensing occupancy are potential methods for implementing.
- Retro-commissioning -- Implement retro-commissioning program to sustain intended building performance in older buildings with no recent renovations or Cx efforts. Building system performance tends to increase as systems age. The retro-commissioning process keeps systems tuned and operating efficiently, but requires either outside Cx agents or active Cx by current or new FM personnel.
- Setbacks -- Use seasonal and off hour space temperature setpoint setbacks in lieu of maintaining the same setpoint temperature during all hours and seasons. Higher space temperatures are acceptable during warm ambient conditions and vice versa.
- Solar thermal - Install solar thermal systems for domestic/service and building hot water heating needs in buildings with year-round reheat/heating water and regular DHW loads.
- VSD pump -- Convert constant speed chilled water and hot water distribution systems to variable speed. For buildings using constant speed chilled and/or hot water pumps, convert to variable speed motors with two-way control valves and static pressure reset controls to reduce pumping energy during part load conditions.
- Window replacement - Install high performance glazing (consistent with ASHRAE 90.1-2013 minimum energy performance) in buildings identified by Tulane's ISES survey as needing replacement.

MTC02e	Metric tons (1,000kg) of carbon dioxide equivalent
Mode split	The percentage of travelers that use different types of transportation
Portfolio	A collection of strategies which are combined towards a specific goal
Reference case	Distinct from BAU, a reference case recognizes the influence of contextual changes such as those driven by regulations or industry trends commonly assumed to occur because of in-place investments or reserves
Geoexchange	Sometimes referred to as ground source heat pumps or geothermal technology, geoexchange is used to provide building heating and cooling and operates by using ground or water sources as a heat source and heat sink.
GHG Scope	Standard categorization of greenhouse gases: • Scope 1 are direct emissions from the University and includes items such as fuels and refrigerants. • Scope 2 are indirect emissions from purchased electricity and purchased steam • Scope 3 are indirect emissions from activities such as commuting, air travel and waste disposal
Savings/Cost	Savings or Cost per metric ton of carbon emissions avoided refers to a calculation of annual financial impact for recommended investments. This number is the present value of the changes in the cost of purchased fuels, electricity, operating expenses and investment capital for every unit of GHG avoided.
Solar PPA	Solar purchase power agreement is a financial agreement that provides for a third party to develop and maintain on-campus solar energy installations
SOV	Single occupant vehicle ---– a vehicle with just the driver and no passengers, normally the most carbon-intensive form of personal transport
TDM	Transportation demand management – the employment of strategies to reduce traffic through change in schedule and in mode
Wedge diagram	A standard graphic used to illustrate the carbon impact of GHG reducing activities as compared to the Business-as-Usual or reference case